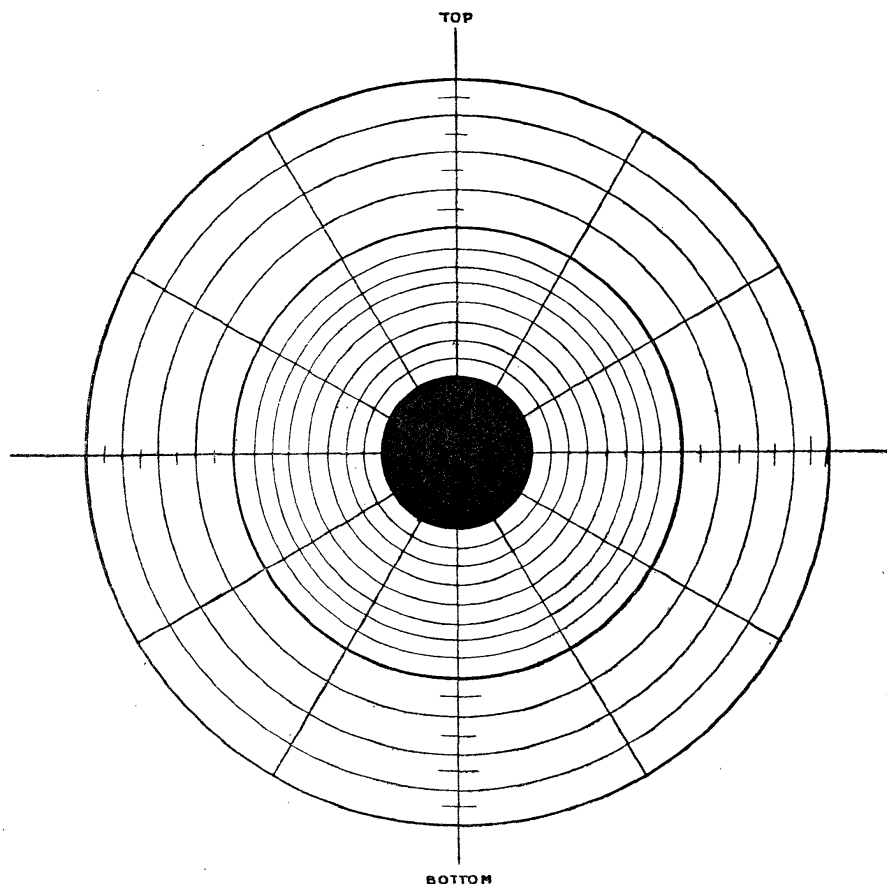


Solar Eclipse without Instrumental Means. By E. J. Stone,
M.A., F.R.S., Radcliffe Observer.

A considerable number of persons keenly interested in astronomy, but unprovided with instrumental means, will, if the weather prove favourable, see the eclipse of 1896 August 9 in Norway.

It has occurred to me that such observers might render a service to astronomy if they were to follow out the plan I recommended, and which was carried out under somewhat similar circumstances for the observations of the eclipse of 1874 in South Africa.

The corona consists of a comparatively bright inner part lying close to the Sun, surrounded by a much fainter mass of luminous matter of vast extent, and generally of most irregular form, which does not yet appear to have been successfully photographed to its full extent. Accurate drawings of the outline will be exceedingly valuable, and, fortunately, inaccuracy, such as affects



the scientific value of the drawings, can be avoided if the following precautions are taken : Those persons who intend to make sketches should provide themselves with a sheet of paper about 9 inches wide by 12 inches long, having upon it a black disc

$1\frac{1}{4}$ inch in diameter to represent the Moon, from the centre of which concentric circles and straight lines at angles of 30 degrees are drawn, as in the accompanying diagram, to place correctly the outlying portions of the corona in position and to scale. A weight must be suspended by a string in such a position that the observer can see it hanging over the Sun's centre, and the diagram upon which the drawing is to be made so placed upon a convenient stand that the line marked "top," "bottom" shall be in the plane passing through the observer's eye, the string, and the Sun's centre; the end marked "top" of the diagram must correspond to the top of the string.

It may be desirable that two or three minutes before totality the observer should cover his eyes, to render them sensible to feeble light, leaving it to a friend to warn him when totality begins; but this should not be carried far enough to strain the eyes.

On the Equipment of the Astrophysical Observatory of the Future. With two Appendices: Appendix I.—On the Support of Large Specula; Appendix II.—On Making the Siderostat an Instrument of Precision. By G. Johnstone Stoney, M.A., D.Sc., F.R.S.

Hitherto the scrutiny of separate celestial objects, or of fields of view, whether by eye observations, with the photographic camera or through the spectroscope, has been carried on amidst practical difficulties with equatorial telescopes expensively mounted and under cumbrous movable domes. To the eye end of the telescope the camera, spectroscope, or other apparatus has had to be attached under conditions not easy to secure, and the apparatus can only be of such a kind as the telescope is able to carry, and which may with safety be borne by the equatorial movement into positions which are often inconvenient and always changing. These limitations preclude the use of delicate apparatus, such as micro-radiometers, which can only be set up upon a fixed support, or of complex appliances, such as the apparatus for producing monochromatic images, recently described by Captain Abney, and from the employment of which, or of other apparatus of a like kind, we may reasonably look for a great accession to our knowledge of the physics of the Sun.

However, the extraordinary success with which instrument makers can now figure large flat mirrors, the much greater facility and certainty with which they can be resilvered, and the possibility of supporting them in all positions with the requisite delicacy and without risk of shifting their line of collimation, by the arrangement described below in Appendix I., give an opportunity of remedying all this. We have it thus within our power